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ABSTRACT

The study investigated the issue of differential selection of foils (incorrect responses) with Black English structures by black and white examinees. Linguistic research revealed systematic differences between Black English and Standard American English. Grammatical and phonological features were important distinctions. Five categories of Black English structures were used to determine the effect of the structure's presence in the foil of an item on the selection of that foil by black and white students. The categories were Tense Formation, The Possessive "-s'," Existential "it," Usage of "like" or "as" in Comparisons, and Relative Pronouns. These structures were used as external verification of bias in items of a standardized English test. A chi-square technique identified several items as having statistically significant chi-squares. These items were linked to particular categories of Black English grammatical structures. Most measurement studies have ignored the linguistic research which delineated systematic differences between Black and Standard English. The information provided by this study would be useful in test construction of standardized examinations. More empirical verification of the differences in the two linguistic systems and their effect on test performance is recommended. (DWH)

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ATTRACTIVENESS OF "BLACK ENGLISH" FOILS: AN EXAMINATION OF A POTENTIAL SOURCE OF ITEM BIAS

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INTRODUCTION

A crucial issue in standardized testing is the problem of item bias and its potential effect on the scores of subgroups of the national student population. External verification of bias as a source of error variance is an important step in its detection and subsequent elimination. One method of accomplishing this is to establish criteria to identify a potentially biased item and then determine if, in fact, bias does occur.

This report investigates one potential source of bias. In multiple choice language exams, the use of Standard American English is tested. The foils (incorrect responses) for items of such exams present nongrammatical or inappropriate structures according to the rules of Standard American English. It is possible to include foils which present expressions which conform to structures used in Black English. To the extent that such foils are selected differentially by black and white examinees, an additional source of error or bias may exist in the exams. This study investigates the issue of differential selection of foils with Black English structures by black and white examinees.

Systematic differences between Black English and Standard American English are well documented in linguistic research (Anderson, 1970; Fasold and Wolfram, 1970; Stewart, 1970; and Labov, 1972). These distinctions are in grammar, phonology, vocabulary and syntax. Of these, grammatical and phonological features are particularly important. As an example, the pronunciation rule allowing for deletion of word final /t/ and /d/ results in the loss of the past tense marker '-ed', (e.g., 'He talked' = 'He talk'). Thus, a given foil may prove more attractive than the correct Standard

English option because it conforms to a commonly used Black English grammatical rule. This 'structural conflict' may cause learning interference resulting from a mismatch of linguistic systems (Labov & Cohen, 1967). Labov and Cohen observed that the frequencies of certain Black English features are radically different from Standard English and must be explained by inferring underlying differences in grammatical rules and structures. A foil reflecting this type of linguistic bias may detract from the validity of the test.

Though systematic usage of a given rule may occur, many factors determine its frequency of use among Black English speakers. These include geographic region (Labov, 1972), socio-economic status (Wolfram, 1968), race and age of the speaker (Hall, 1973), and educational developmental stage (Torrey, 1977). According to Labov (1972) and Torrey (1977), a person's understanding of Standard American English, and his oral and/or written production of Standard versus Black English may differ. Torrey found that Black English speakers spontaneously produced both forms in written compositions. However, they were less adept than Standard English speakers at changing nonstandard Black English to standard form. Differential recognition by Black English and Standard English speakers of Standard English expressions as required in multiple choice exams has not been studied. It is important to determine whether a given foil in a multiple choice English usage exam is more attractive to black examinees than to white because it conforms to a commonly used Black English grammatical rule.

The English Usage test of the ACT Assessment includes five item categories: punctuation, grammar, sentence structure, diction and style, and logic and organization. For this type of exam, the student's capacity to select effective expository expressions and his/her understanding of the

conventions of written English are crucial. The present study uses five categories of commonly occurring Black English structures to determine the effect of the structure's presence in the foil of an item on the selection of that foil by black and white students.

The five categories are:

1. Tense Formation

   A. Person-number agreement. In Standard American English, the '-s'' of the present tense is a marker for regular verb agreement with third person singular subjects. This tense marker is not a feature of Black English grammar. Thus, the Standard English form 'he comes' may be spoken as 'he come' in Black English. Attempting to apply the Standard English rule may result in the optional use of '-s'' and '-es' tense markers with other person-number combinations. This hypercorrection may yield 'they walks' and the children walks' (Labov & Cohen, 1967; and Ginn, 1975).

   When full forms of the infinitive 'to be' occur, some Black English speakers may use 'is' in the present tense and 'was' in the past tense regardless of subject. An example is, 'They was going to the store.' (Bousquet, 1978).

   B. Modals will and would, can and could. When permission is asked, formal English prefers the usage of 'may' instead of 'can'. Informally, however, 'can' is increasingly substituted for 'may' (e.g., 'Can I go to the movies?'). In contrast, Black English speakers may use the past tense form 'could' interchangeably with 'can' as a present tense modal (e.g., 'Could I go now?') (Anderson, 1970; Bousquet, 1978).

Standard English uses 'will' for all persons to denote simple future. In question format, the appropriate form is 'Will you go to the store with me?'. In indirect discourse, 'would' serves as the past tense form 'will' (e.g., 'He said he would go to the store with me.'). Black English may use 'would' interchangeably with 'will' in some instances (e.g., 'Would you go to the store with me?') (Anderson, 1970).

The verb 'to be' has five variant forms (is, am, are, was, and were) in formal English. Black English shows an invariant form of 'be' used as a main verb regardless of person and number agreement (e.g., 'I be here this afternoon.'). In this example, it is understood that 'will' is the underlying, deleted form (Bousquet, 1978).

2. The Possessive '-'s'

In Standard English, '-'s' appears in attributive (e.g., the girl's dress) and absolute (e.g., the dress is the girl's) positions to mark possession. In contrast, Black English speakers may delete this marker in attributive (e.g., the girl dress) position but not in absolute. Because of this somewhat unstable usage, the '-s'' suffix may be dropped or may appear in an inappropriate position (e.g., mens' clothing). This is particularly true with names as in the phrase 'Jack's Johnson's car' (Fasold & Wolfram, 1970; and Bousquet, 1978).

3. Existential 'it'

Where Standard English uses 'there' in an existential or expletive function (e.g., 'there' does not refer to a previous noun phrase

and does not, by itself, have a semantic referent), Black English may use 'it'. As an example, 'There is a man on the street corner' is the Standard equivalent of 'It is a man on the street corner'. The contracted forms 'there's' and it's' may also be confused with 'theirs' and its' (Fasold & Wolfram, 1970; and Anderson, 1970). Many Black English speakers use 'it' in an existential sense where there is no clear Standard English parallel (e.g., 'It was when I went home...').

4. Usage of 'like' or 'as' in Comparisons

To introduce a clause of comparison with a definite subject and verb, Standard English uses 'as', 'as if', 'as though', instead of 'like'. In Black English, 'like' is the preferred adverb. For example, 'He acted as if he didn't feel well' is most frequently expressed as 'He acted like he didn't feel well'. Where Standard English would use 'such as', Black English would also prefer 'like'.

5. Relative Pronouns

In Standard English, the relative pronouns 'who', 'which', and 'that' have different usages. 'Who' refers to persons and may be used in restrictive and nonrestrictive clauses. 'Which' refers to things and may also introduce both restrictive and nonrestrictive clauses. 'That' may refer to either persons or things and is almost always used to begin restrictive clauses.

In Black English, 'which' is the general pronoun most often replacing 'that' and 'who' (e.g., 'The people, which live on my block,...') (Labov & Cohen, 1967). In other cases, 'which' may serve as a general connective in the same sense that 'and' functions

(e.g., 'They were poor, which we all were poor, but I mean...'). In this example, 'which' is not tied to a particular noun phrase.

METHOD

Materials

Two parallel test forms of the 75 item standardized test of English usage were examined. These forms were administered during the 1979-80 school year. Using the criteria outlined above, 18 multiple choice items of the 150 were selected for consideration. One Black English characteristic in a foil was used to assign an item to a particular category resulting in two to four items per category.

Samples

In order to obtain at least two items per category, it was necessary to select from two parallel forms of the ACT English assessment exam. This resulted in two samples of examinees. The first sample of examinees consisted of 881 black and 883 white high school students randomly selected from the same geographic regions. The second sample included 2000 black and 2000 white students randomly selected from students administered the test nationally.

Procedure

The sample was partitioned into six ability groupings according to the student's total raw score on the 75 items. Two 2 X 2 contingency tables were constructed for each level of ability. For both black and white groups, the frequency of selecting the foil containing the Black English characteristic was compared to the frequency of choosing other foils. Another comparison was made to determine the effect of eliminating correct choices from selection possibilities. The basic question in this study is whether black and white

groups matched on ability have the same probability of selecting a Black English foil. An item is potentially biased if the probabilities of selection for the two groups are significantly different.

A Chi-square technique was used to analyze the data. Computation of the overall Chi-square (χ^2) was obtained by calculating a χ^2 for each table and summing over the six ability levels. Thus, an overall χ^2 was computed for both comparisons. The contribution from each ability level to the χ^2 statistic was also examined.

A representation of the total Chi-square formula is:

$$\chi_j^2 = \frac{(O_{1j}-E_{1j})^2}{E_{1j}} + \frac{(O_{2j}-E_{2j})^2}{E_{2j}}$$

$$+ \frac{(O'_{1j}-E'_{1j})^2}{E'_{1j}} + \frac{(O'_{2j}-E'_{2j})^2}{E'_{2j}}$$

$$\chi^2 \text{ total} = \sum_{j=1} \chi_j^2$$

where

i = 1 Black

2 White

j = 1 Lowest score group

.

.

.

6 Highest score group

O_{ij} = Observed frequency of Black English foil choice

E_{ij} = Expected frequency of Black English foil choice

O'_{ij} = Observed frequency of choice of other foils

E'_{ij} = Expected frequency of choice of other foils

Though the above Chi-square procedure may indicate potential bias, it does not give the direction of bias. Ironson and Subkoviak (1979) suggest a method of assigning positive and negative indices for this purpose. If the selection of the Black English foil is greater than expected for the Black ethnic group, then a positive sign is attached to the 2 X 2 contingency table. If the observed frequency is less than expected, then a negative sign is assigned. The signed Chi-square is obtained by summing over the six ability levels. A significant, positive, signed Chi-square would indicate potential bias against the black ethnic group. The reverse (significant and negative) would indicate potential bias against the white group.

RESULTS

A value of $\chi^2_{6,.95} = 12.59$ was the critical value for considering an item as potentially biased. The results of the unsigned Chi-square test are presented in Table 1. Approximately 39% (7 out of 18) of the items were significant beyond the .05 alpha level. The trend was the same for the Black English foil versus other options (correct option included) and Black English foil versus other options (correct option excluded). For the latter comparison, 6 of the 18 items were significant. The potential bias in selection of the Black English foil was mainly concentrated in two categories: Person-Number agreement and Existential 'it'. A third, Relative Pronoun 'which' vs. 'who', had one significant item using the unsigned χ^2 when the correct option was included in the 'other' options comparison. For the procedure in which the correct option was excluded, two items were significant.

Table 2 presents the results of the test for the equality of proportion at each given ability level for items with significant unsigned Chi-squares. Only the levels with Chi-square values greater than $\chi^2_{1,.9927} = 7.1327$ are reported. In 50% of the items, a significant contribution to the overall χ^2 total occurred at the lowest ability level. When the correct option frequencies were excluded, the trend was similar.

Table 3 summarizes the results of the signed Chi-square analyses. For the procedure in which correct options were included, three items were statistically significant. One item in the Person-Number agreement category showed a potential bias against blacks. Two items in the Existential 'it' classification indicates potential bias against whites. Only one other item in the Relative Pronoun 'which' vs. 'who' category approached significance with a p value of .1.

When the procedure excluded the correct option, two items were statistically significant. In this case, one was potentially biased against blacks and one against whites.

Table 4 presents the item difficulty and discrimination indices for each Black English grammatical category. Of the seven items that were statistically significant, five had been administered to the random sample of students and two were from the sample matched on geographic region.

DISCUSSION

The results of this study did not support the hypothesis that blacks select the Black English foils more frequently than whites. The unsigned Chi-square analysis did identify a trend of significant Chi-squares associated with two Black English grammatical categories. They were the Person-Number

agreement and the Existential 'it' classifications. For these categories, three out of the four items included reached statistical significance. When blacks and whites were from the same geographical region, the Chi-squares were less likely to be statistically significant.

The signed Chi-square test did not suggest concrete evidence of potential bias against blacks or whites. When the correct option was included in the comparison, two items were biased against whites and one against blacks. When the correct option was excluded, a different item was biased against blacks and only one of the two previously statistically significant items showed bias against whites. Though there is some criticism of the sign test (Baker, 1980), the results suggest that examination of the direction of bias is crucial so that the results are not over-interpreted.

Several possible explanations for these findings exist. In the literature, major linguistic research centers upon young blacks in urban, inner-city settings and lower socio-economic levels. There is evidence that, as educational and/or socio-economic levels rise, the frequency of use of Black English grammatical structures decreases (Wolfram, 1968). The black seniors in this sample may be more sensitive to distinctions between Standard and Black English. Thus, the categories selected for the present study may not be as crucial for them as for other students at a lower educational level. It is possible that more sophisticated elements of English usage such as diction and style may present more difficulty than obvious differences. It may also be the case that some white students use rules of Black English and may not be aware of the differences between Standard and non-Standard English.

The present results also suggest an effect tied to geographic region. Association in schools or other environments may bring about active

assimilation of language characteristics of Black English by whites. In addition, varieties of Black English may exhibit some regional features of non-formal Standard English spoken by many whites. Control of such moderator variables are necessary to sort out the effects.

Obtaining statistically significant Chi-squares that indicate potential bias in a test inevitably leads to questions concerning implications. The decision must be made to exclude, include or modify such items. The finding of non-significant Chi-squares does not automatically rule out certain Black English categories as targets of future research. Results of research on this topic will aid decision-making on what may or may not be a source of bias.

In summary, this study used linguistically established Black English grammatical structures as external verification of bias in items of a standardized English test. This resulted in the selection of 18 out of 150 items as potentially biased. Using an unsigned Chi-square technique, seven out of 18 items were identified as having statistically significant Chi-squares. These were linked to particular categories of Black English grammatical structures. Employing the signed test, two to three items were statistically significant.

The potential importance of the present findings is in its heuristic value. Most measurement studies have ignored the large body of linguistic research which delineates systematic differences between Black and Standard English. Bias detection procedures may establish that bias exists in an item without giving meaningful information on 'why' or what can be done about it. Such information as provided here may be especially useful in

the test construction phase of standardized exams. Prior to this, however, much more empirical verification of the subtle differences in the two linguistic systems and their effect on test performance is desirable.

Table 1

Unsigned Chi-Square Summary Table

Black English Grammatical Category	Black English Foil vs. Other Foils X^2	Black English Foil vs. Other Foils Minus Correct Frequencies X^2
Person-Number agreement		
Item 1	15.1690*	14.9315*
Item 2	.9475	1.8250
Item 3	31.4960*	3.7171
Item 4	19.7940*	15.1479*
Modals will/would, can/could		
Item 5	3.5310	5.9184
Item 6	.4680	1.7924
Possessive "'s"		
Item 7	8.1100	1.7729
Item 8	4.4670	8.1956
Existential 'it'		
Item 9	24.8760*	19.3313*
Item 10	17.9140*	17.9677*
Item 11	4.3130	5.2760
Item 12	14.5680*	11.2690
'Like' or 'as' in comparisons		
Item 13	10.5410	2.6053
Item 14	7.0190	5.6247
Relative pronoun 'which' vs. 'who'		
Item 15	11.8614	20.7126*
Item 16	12.9530*	18.0212*
Item 17	6.8700	3.6790
Item 18	6.8890	8.8018

*Chi-square is statistically significant beyond .05 alpha level (df = 6).

Table 2

χ^2 Test at Each Ability Level for Significant Chi-Squares
(Unsigned)

Grammatical Category	Black English Foil vs. Other Foils Level	χ^2	Black English Foil vs. Other Foils Minus Correct Frequencies Level	χ^2
Person-Number agreement				
Item 1	J=1-6	NS[1]	J=1-6	NS
Item 3	J=3	9.4767*	J=1-6	NS
	J=5	7.3617*		
Item 4	J=1	11.0687*	J=1	12.5091*
Existential 'it'				
Item 9	J=1	8.6547*	J=1	9.6538*
Item 10	J=1	11.1248*	J=1	10.1340*
Item 12	J=4	7.5490*	J=1-6	NS
Relative pronoun 'which' vs. 'who'				
Item 15	J=1-6	NS	J=5	10.1630*
Item 16	J=1	8.3812*	J=1	8.7526*

[1] NS = nonsignificant.

*Chi-square is significant beyond $\chi^2_{1,.9927} = 7.1327$ (experiment-wise alpha level .05/6).

Table 3

Signed Chi-Square Summary Table

Black English Grammatical Category	Black English Foil vs. Other Foils χ^2	Black English Foil vs. Other Foils Minus Correct Frequencies χ^2
Person-Number agreement		
Item 1	- 2.1050	- 6.3021
Item 2	- .8135	- .9362
Item 3	+31.4960*	+ 3.7171
Item 4	- 2.3785	-11.6159
Modals will/would, can/could		
Item 5	- 3.1419	- 5.7585
Item 6	+ .3180	- .1624
Possessive "'s"		
Item 7	- 8.1104	- 1.7729
Item 8	- 4.0353	- 8.1558
Existential 'it'		
Item 9	-24.8756*	-19.3313*
Item 10	- 4.5355	+ 2.3019
Item 11	- 4.1830	- 5.1080
Item 12	-12.7620*	-10.4510
'Like' or 'as' in comparisons		
Item 13	- 3.8305	- 1.9129
Item 14	+ 3.4284	+ 3.2181
Relative pronoun 'which' vs. 'who'		
Item 15	+10.5370	+17.4280*
Item 16	+ 2.7046	- 4.7598
Item 17	+ 3.7260	+ 1.0350
Item 18	- 6.4907	- 8.473

*Chi-square is statistically significant beyond .05 alpha level (df = 6).

Table 4

Item Quality

Black English Grammatical Category	Item Difficulty[1] Black	Item Difficulty[1] White	Item Discrimination[2] Black	Item Discrimination[2] White
Person-Number agreement				
Item 1	.45	.51	.71	.73
Item 2	.40	.39	.49	.57
Item 3	.56	.84	.63	.57
Item 4	.34	.62	.67	.76
Modals will/would, can/could				
Item 5	.22	.44	.50	.52
Item 6	.55	.60	.46	.58
Possessive "'s"				
Item 7	.66	.74	.40	.34
Item 8	.41	.56	.40	.35
Existential 'it'				
Item 9	.15	.27	.28	.33
Item 10	.24	.83	.68	.77
Item 11	.35	.35	.40	.51
Item 12	.31	.32	.45	.38
'Like' or 'as' in comparisons				
Item 13	.28	.41	.36	.55
Item 14	.32	.45	.38	.51
Relative pronoun 'which' vs. 'who'				
Item 15	.43	.67	.71	.71
Item 16	.22	.35	.18	.31
Item 17	.54	.54	.39	.59
Item 18	.34	.34	.62	.54

[1]Item Difficulty = observed correct frequencies summed across J levels/ethnic group total N count.

[2]Item Discrimination = observed correct frequency for upper minus observed correct frequency for lowest ability level (P_U-P_L).

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